**April 1, 2002** 

## MANAGEMENT OF MERCURY IN VETERANS HEALTH ADMINISTRATION FACILITIES

**1. PURPOSE:** This Veterans Health Administration (VHA) Directive assigns responsibility and describes procedures for the management, reduction, and virtual elimination of mercury and mercury containing compounds in VHA health care facilities.

### 2. BACKGROUND

- a. The Federal Pollution Prevention Act formally establishes Pollution Prevention (P2) as a national objective and defines P2 as source reduction and other practices that reduce or eliminate the creation of pollutants. This act establishes a hierarchy of environmental protection consisting of prevention or source reduction, recycling, treatment and disposal into the environment. The most desirable method of pollution abatement is prevention or source reduction. Disposal or other releases into the environment should be done only as a last resort and then in an environmentally safe manner.
- b. The Resource Conservation and Recovery Act (RCRA) covers the generation, treatment, storage, disposal and transportation of both hazardous and non-hazardous waste and emphasizes source reduction as the highest priority. RCRA requires the "cradle-to-grave" management of hazardous waste (HW), encourages recycling and reuse, and further requires HW generators and treatment, storage, and disposal facility owners to certify that the generator has a program in place to "reduce the volume or quantity and toxicity" of waste.
- c. Executive Order (E.O.) 13101, Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition, is a policy document for resource conservation and pollution prevention. E.O. 13101 directs each Federal agency to set measurable goals for recycling and solid waste reduction and requires specific means of affirmative procurement of recycled and reusable "environmentally preferable" material. This E.O. stresses the hierarchy of environmental protection: source reduction, recycling, treatment and disposal.
- d. E.O. 13148, Greening the Government Through Leadership in Environmental Management, establishes performance standards in environmental management, environmental compliance and the public's right to know. The goal of the E.O. is to achieve significant reductions in toxic chemicals, hazardous substances and other pollutants utilizing source reduction as the single most important means of pollution prevention.
- e. Mercury (Hg) is a toxic metal and a natural element commonly seen as a shiny, silver-white odorless liquid metal. It is a persistent, bioaccumulative and toxic (PBT) pollutant that affects the nervous system. All forms of Hg are toxic to humans, but the various forms of organic and inorganic Hg have different toxicity. Generally, organic forms are much more toxic than inorganic forms. The organic forms of Hg are primarily neurotoxins. Therefore exposure can damage the brain and nervous system. Other organs and systems of the body can be harmed

by exposure to Hg. Potential exposure to Hg is via inhalation, ingestion and absorption. The most likely routes of exposure are the inhalation of inorganic Hg after a spill or refilling exposure, or ingestion of methyl Hg.

- f. On June 24, 1998, the Environmental Protection Agency (EPA) Region V and the American Hospital Association entered into a Memorandum of Understanding (MOU) to jointly develop a Hg waste virtual elimination plan with the goal of eliminating Hg from the health care waste stream by 2005. This MOU acknowledged the problems associated with Hg and Hg containing compounds when distributed into the environment and stresses pollution prevention techniques and source reduction as preferable to recycling and disposal into the waste stream.
  - g. The benefits of an Hg control and reduction program include:
  - (1) Protection of human health by reducing occupational exposures;
  - (2) Avoiding the release of Hg into the air, water, and land;
  - (3) Avoiding the costs of collection storage and disposal; and
- (4) Reducing or eliminating the potential for employee exposure and environmental liability for spills and disposal of Hg waste.
- **3. POLICY:** It is VHA policy to fully comply with the Pollution Prevention Act, Resource Conservation and Recovery Act, E. O. 13101, E. O. 13148, and other applicable state and local environmental regulations in controlling and reducing elemental Hg and Hg containing compounds in the health care waste steam. *NOTE:* Hg reduction and control guidance and information is contained in Attachment A.

### 4. ACTION

- a. <u>Veterans Integrated Service Network (VISN) Directors.</u> VISN Directors must ensure that each health care facility:
- (1) Develops a facility specific Hg control and reduction plan to be reviewed annually by the respective VISN that includes a statement of management commitment to Hg control and reduction efforts;
- (2) Conducts a thorough inventory to document the number and types of medical and non-medical devices containing Hg within the facility;
  - (3) Identifies and where practical utilizes alternatives for products that contain Hg;
- (4) Reduces the number of Hg containing products as necessary where suitable substitutes are available and Hg containing waste by a total of 50 percent between calendar years 2001 and 2006 with the ultimate goal of achieving a virtually Hg-free environment;

- (5) Develops facility guidance, policies and operating procedures to implement Hg reduction in aspects of facility operation that involve Hg use;
- (6) Implements Hg reduction into all phases of the acquisition and procurement process as well as the operation of the facility management program;
  - (7) Promotes Hg reduction through employee training and awareness programs; and
- (8) Disposes of Hg and Hg containing products in accordance with all applicable federal, state, and local regulations.
- b. <u>Chief Facilities Management Officer (18).</u> The Chief Facilities Management Officer (18) must:
- (1) Ensure that Hg reporting requirements are incorporated into Report Control Number (RCN) 10-99-904, as needed
- (2) Incorporate Hg control and reduction into the Office of Facilities Management guidance, practices, procedures, and specifications;
- (3) Encourage, review and support the development of pilot projects for Hg control and reduction:
  - (4) Determine if there are national trends requiring redress;
- (5) Provide for the periodic review with the Assistant Deputy Under Secretary for Health (10N); and
  - (6) Develop recommendations for correction to the Under Secretary for Health.

### 5. REFERENCES:

- a. Pollution Prevention Act of 1990, Public Law (Pub. L.) 101-453;
- b. Resources Conservation and Recovery Act of 1976, Pub. L. 94-580;
- c. E.O. 13101, Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition, dated September 4, 1998;
- d. E.O. 13148, Greening the Government Through Leadership in Environmental Management, dated April 21, 2000; and
- e. Memorandum of Understanding between United States Environmental Protection Agency Region V and the American Hospital Association of June 24, 1998.

- **6. FOLLOW-UP RESPONSIBILITY:** The Chief Facilities Management Officer (18) is responsible for the content of this Directive. Questions concerning this Directive may be referred to Environmental Programs Service (181C) by calling (202) 565-8525.
- **7. RESCISSION:** None. This VHA Directive expires March 31, 2007.

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Attachments

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#### ATTACHMENT A

### MERCURY CONTROL AND REDUCTION INFORMATION AND GUIDANCE

### 1. Health Impacts

- a. All forms of mercury (Hg) are toxic to humans, but the various forms of organic and inorganic Hg have different toxicity. Generally, organic forms are much more toxic than inorganic forms.
- b. The organic forms of Hg are primarily neurotoxins. Therefore exposure can damage the brain and nervous system. The developing brain of a fetus or child is especially vulnerable to organic Hg exposure. Inorganic forms of Hg primarily affect the kidney, but are also neurotoxins. Other organs and systems of the body can also be harmed by exposure to Hg.
- 2. A human can be exposed to Hg via all three routes of exposure: inhalation, ingestion and absorption. The most likely routes of exposure are inhalation of inorganic Hg vapor after a spill, or during a manufacturing process, or through ingestion of methyl Hg.

## 3. Mercury in Medical Facilities

#### a. Medical Uses

- (1) Thermometers,
- (2) Sphygmomanometers (blood pressure monitors),
- (3) Esophageal dilators (also called bougie tubes),
- (4) Cantor tubes and Miller Abbott tubes (used to clear intestinal obstructions),
- (5) Feeding tubes,
- (6) Dental amalgam,
- (7) Laboratory Chemicals (fixatives, stains, reagents, preservatives), and
- (8) Medical batteries containing Hg.

## b. Non-medical Uses Common in Medical Settings

- (1) Cleaning solutions with caustic soda or chlorine that were contaminated with Hg curing the production process,
  - (2) Batteries containing Hg,
  - (3) Fluorescent lamps and high-intensity lamps,

- (4) Non-electronic thermostats,
- (5) Pressure gauges, and
- (6) Some electrical switches used for lights and appliances.
- 4. <u>Hg Exposure.</u> There is minimal risk of Hg exposure during normal use of products that are handled correctly. However, problems may occur if the Hg in a product is exposed to air, or if a product is not properly discarded in a manner to keep Hg out of the environment. Concerns about the health impacts of Hg are leading to Hg pollution prevention programs at the Federal, state, and local levels. The highest priority of any pollution prevention program is source reduction, which means avoiding the use of Hg and Hg containing products where practical.
- 5. When Adequate Hg Alternatives are Unavailable. When adequate Hg alternatives are not available and Hg must be used, it may be possible to recycle Hg in order to prevent release into the environment. Recycling is the second tier of Hg pollution prevention. Disposal of Hg that is irreversibly contaminated should be the last resort. It is expensive and increases the potential of Hg being dispersed into the environment.
- 6. **Examples of Hg Control and Reduction.** Some excellent examples of Hg control and reduction include the following:
- a. Replace Hg sphygmomanometers (blood pressure monitors) with aneroid/electronic sphygmomanometers.
  - b. Replace Hg thermometers with non-Hg thermometers.
- c. Replace Hg intestinal and esophageal dilators and feeding tubes with alternatives using water, saline or tungsten.
- d. Switch to low Hg fluorescent lights and develop a recycling program for all fluorescent lights.
  - e. Replace Hg containing batteries with Hg-free alternatives and/or rechargeable products.
- f. Replace Hg thermostats, pressure gauges, barometers, switches and other building or facility equipment with Hg-free alternatives.
  - g. Replace Hg fixatives and preservatives with Hg-free alternatives.
  - h. Replace bleach and cleaning chemicals containing traces of Hg with Hg-free alternatives.
- i. Set up a program for appropriate collection of used amalgam and install amalgam separators in sinks and drains in the dental clinic.

- 7. **Best Management Practices (BMPs).** BMPs for the management of Hg within health care facilities include:
  - a. Use of alternatives for products that contain Hg.
  - b. Recycling of Hg-containing products when they can no longer be used.
  - c. Correct handling and disposal of Hg, Hg-containing equipment and laboratory chemicals.
  - d. Proper cleanup of spills involving Hg.
  - e. Hospital policies that support BMPs.
- 8. <u>Benefits of Hg Pollution Prevention Programs</u>. Benefits of Hg pollution prevention programs include:
- a. Protection of human health by reducing occupational exposures and release of Hg to the air, water and land.
  - b. Avoidance of the costs associated with the use of Hg, such as:
  - (1) Disposal or recycling,
  - (2) Collection and storage prior to disposal,
  - (3) Paperwork for tracking hazardous waste disposal,
  - (4) Training, and equipment for spill response,
  - (5) Training for hospital employees who handle Hg-containing products, and
  - (6) Liability for environmental problems or worker exposure.